WHAT IS CLAIMED IS

1. In a code division multiple access radio communication system, a power calculation method for calculating a power of a radio wave in a radio channel included in a radio line established between a transmitting station and a receiving station in the system, comprising the step of:

calculating the power of the radio wave of the radio channel, with using a transmission power of the radio channel and a total transmission power including the transmission power of the radio channel.

2. A power calculation method as claimed in Claim 1, wherein

the transmission power of the radio channel and a ratio of the transmission power of the radio channel to a total transmission power are used for calculating the power of the radio wave of the radio channel.

3. A power calculation method as claimed in Claim 1, wherein

the total transmission power and a ratio of the transmission power of the radio channel to the total transmission power are used for calculating the power of the radio wave of the radio

channel.

4. A power calculation method as claimed in claim 1, wherein a required receiving power R in the radio channel is calculated by a following formula:

$$R = R_0 \frac{1}{1 - \frac{\Lambda}{pg} \cdot \frac{P_{total}}{P}}$$

herein,

R_0 is a required receiving power when interference does not exist at all at a receiver,

Λ is a signal to noise (interference is included) power ratio required at the receiver,

pg is a spread gain,

P is the transmission power of the predetermined radio channel transmitted from the transmitting station, and

P_{total} is the total power transmitted from the transmitting station.

5. A power calculation method as claimed in claim 3, wherein a following formula is used to calculate a required receiving power R at a receiver.

$$R = R_0 \frac{1}{1 - \frac{\Lambda}{pg} \cdot \frac{1}{\xi}}$$

herein,

R_0 is a required receiving power when interference does not exist at all at the receiver,

Λ is a signal to noise (interference is included) power ratio needed by the receiver,

pg is a spread gain, and

ξ is a ratio of the transmission power of the predetermined radio channel transmitted from the transmitting station to the total transmission power.

6. A power calculation method as claimed in claim 3, wherein the power of the radio wave of the radio channel is calculated using a coefficient that estimates an amount of interference received from the transmitting station with which the receiving station is in communication.

7. A power calculation method as claimed in claim 3, wherein the power of the radio wave of the radio channel is calculated using a coefficient representing a ratio of a sum of interference

amounts from transmitting stations other than the transmitting station in communication with the receiving station, and interference power from the transmitting station in communication with the receiving station.

8. A power calculation method as claimed in claim 6, wherein the required receiving power R is calculated by one of following formulas:

$$R = R_0 \frac{1}{1 - \frac{\Lambda}{pg} \cdot \frac{P_{total}}{P} \cdot \gamma}$$

or

$$R = R_0 \frac{1}{1 - \frac{\Lambda}{pg} \cdot \frac{\gamma}{\xi}}$$

herein,

R_0 is a required receiving power when interference does not exist at all at the receiving station,

Λ is a signal to noise (interference is

included) power ratio required by the receiving station,

pg is a spread gain,

P is the transmission power of the predetermined radio channel transmitted from the transmitting station,

P_{total} is the total transmission power from the transmitting station,

ξ is a ratio of the transmission power of the predetermined radio channel transmitted from the transmitting station to the total transmission power, and

γ is a coefficient multiplied to interference from the transmitting station in communication with the receiving station.

9. A power calculation method as claimed in claim 7, wherein the required receiving power R is calculated according to one of following formulas:

$$R = R_0 \frac{1}{1 - \frac{\Lambda}{pg} \cdot \frac{P_{total}}{P} \cdot (1 + F)}$$

or

$$R = R_0 \frac{1}{1 - \frac{\Lambda}{pg} \cdot \frac{1+F}{\xi}}$$

herein,

R_0 is a required receiving power when interference does not exist at all at the receiving station,

Λ is a signal to noise (interference is included) power ratio required at the receiving station,

pg is a spread gain,

P is the transmission power of the predetermined radio channel transmitted from the transmitting station,

P_{total} is the total transmission power from the transmitting station,

ξ is a ratio of the transmission power of the predetermined radio channel transmitted from the transmitting station to the total transmission power, and

F is a power ratio of a total interference from transmitting stations other than the transmitting station in communication with the receiving station, and an interference from the transmitting station in communication with the receiving station.

10. A power calculation method as claimed in claim 8, wherein the required receiving power of the radio channel is calculated according to one of following formulas:

$$R = R_0 \frac{1}{1 - \frac{\Lambda}{pg} \cdot \frac{P_{total}}{P} \cdot (\gamma + F)}$$

or

$$R = R_0 \frac{1}{1 - \frac{\Lambda}{pg} \cdot \frac{\gamma + F}{\xi}}$$

herein,

R_0 is a required receiving power when interference does not exist at all at the receiving station,

Λ is a signal to noise (interference is included) power ratio required at the receiving station,

pg is a spread gain,

P is the transmission power of the predetermined radio channel transmitted from the transmitting station,

P_{total} is the total transmission power from the transmitting station,

ξ is a ratio of the transmission power of the predetermined radio channel transmitted from the transmitting station to the total transmission power,

γ is a coefficient multiplied to interference from the transmitting station in communication with the receiving station, and

F is a power ratio of a total interference from transmitting stations other than the transmitting station in communication with the receiving station, and an interference from the transmitting station in communication with the receiving station.

11. In a code division multiple access radio communication system, a power calculation apparatus for calculating a power of a radio wave in a radio channel included in a radio line established between a transmitting station and a receiving station in the system, comprising:

power calculation means that calculates the power of the radio wave of the radio channel, with using a transmission power of the radio channel and a total transmission power including the transmission power of the radio channel.

12. A power calculation apparatus as claimed in Claim 11, wherein

the power calculation means uses the transmission power of the radio channel and a ratio of the transmission power of the radio channel to a total transmission power, for calculating the power

of the radio wave of the radio channel.

13. A power calculation apparatus as claimed in Claim 11, wherein

the power calculation means uses the total transmission power and a ratio of the transmission power of the radio channel to the total transmission power, for calculating the power of the radio wave of the radio channel.

14. A power calculation apparatus as claimed in claim 11, wherein the power calculation means calculates a required receiving power R in the radio channel by a following formula:

$$R = R_0 \frac{1}{1 - \frac{\Lambda}{pg} \cdot \frac{P_{total}}{P}}$$

herein,

R_0 is a required receiving power when interference does not exist at all at a receiver,

Λ is a signal to noise (interference is included) power ratio required at the receiver,

pg is a spread gain,

P is the transmission power of the

predetermined radio channel transmitted from the transmitting station, and

P_{total} is the total power transmitted from the transmitting station.

15. A power calculation apparatus as claimed in claim 13, wherein the power calculation means uses a following formula to calculate a required receiving power R at a receiver.

$$R = R_0 \frac{1}{1 - \frac{\Lambda}{pg} \cdot \frac{1}{\xi}}$$

herein,

R_0 is a required receiving power when interference does not exist at all at the receiver,

Λ is a signal to noise (interference is included) power ratio needed by the receiver,

pg is a spread gain, and

ξ is a ratio of the transmission power of the predetermined radio channel transmitted from the transmitting station to the total transmission power.

16. A power calculation apparatus as claimed in claim 13, wherein the power calculation

means calculates the power of the radio wave of the radio channel using a coefficient that estimates an amount of interference received from the transmitting station with which the receiving station is in communication.

17. A power calculation apparatus as claimed in claim 13, wherein the power calculation means calculates the power of the radio wave of the radio channel using a coefficient representing a ratio of a sum of interference amounts from transmitting stations other than the transmitting station in communication with the receiving station, and interference power from the transmitting station in communication with the receiving station.

18. A power calculation method as claimed in claim 16, wherein the power calculation means calculates the required receiving power R by one of following formulas:

$$R = R_0 \frac{1}{1 - \frac{\Lambda}{pg} \cdot \frac{P_{total}}{P} \cdot \gamma}$$

or

$$R = R_0 \frac{1}{1 - \frac{\Lambda}{pg} \cdot \frac{\gamma}{\xi}}$$

herein,

R_0 is a required receiving power when interference does not exist at all at the receiving station,

Λ is a signal to noise (interference is included) power ratio required by the receiving station,

pg is a spread gain,

P is the transmission power of the predetermined radio channel transmitted from the transmitting station,

P_{total} is the total transmission power from the transmitting station,

ξ is a ratio of the transmission power of the predetermined radio channel transmitted from the transmitting station to the total transmission power, and

γ is a coefficient multiplied to interference from the transmitting station in communication with the receiving station.

19. A power calculation apparatus as claimed in claim 17, wherein the power calculation means calculates the required receiving power R

according to one of following formulas:

$$R = R_0 \frac{1}{1 - \frac{\Lambda}{pg} \cdot \frac{P_{total}}{P} \cdot (1 + F)}$$

or

$$R = R_0 \frac{1}{1 - \frac{\Lambda}{pg} \cdot \frac{1 + F}{\xi}}$$

herein,

R_0 is a required receiving power when interference does not exist at all at the receiving station,

Λ is a signal to noise (interference is included) power ratio required at the receiving station,

pg is a spread gain,

P is the transmission power of the predetermined radio channel transmitted from the transmitting station,

P_{total} is the total transmission power from the transmitting station,

ξ is a ratio of the transmission power of the predetermined radio channel transmitted from the transmitting station to the total transmission power,

and

F is a power ratio of a total interference from transmitting stations other than the transmitting station in communication with the receiving station, and an interference from the transmitting station in communication with the receiving station.

20. A power calculation apparatus as claimed in claim 18, wherein the power calculation means calculates the required receiving power of the radio channel according to one of following formulas:

$$R = R_0 \frac{1}{1 - \frac{\Lambda}{pg} \cdot \frac{P_{total}}{P} \cdot (\gamma + F)}$$

or

$$R = R_0 \frac{1}{1 - \frac{\Lambda}{pg} \cdot \frac{\gamma + F}{\xi}}$$

herein,

R_0 is a required receiving power when interference does not exist at all at the receiving station,

Λ is a signal to noise (interference is included) power ratio required at the receiving station,

pg is a spread gain,

P is the transmission power of the predetermined radio channel transmitted from the transmitting station,

P_{total} is the total transmission power from the transmitting station,

ξ is a ratio of the transmission power of the predetermined radio channel transmitted from the transmitting station to the total transmission power,

γ is a coefficient multiplied to interference from the transmitting station in communication with the receiving station, and

F is a power ratio of a total interference from transmitting stations other than the transmitting station in communication with the receiving station, and an interference from the transmitting station in communication with the receiving station.